**Final Synopsis**

# *A SOCIOLOGICAL STUDY ON FERTILITY AND MORTALITY AMONG THE TEA GARDEN LABOUR COMMUNITY OF DIBRUGARH DISTRICT, ASSAM*

**Submitted to**

**SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY**
**NANDED**

**For The Registration of Degree of Philosophy (Ph. D.) In Sociology Under The Faculty of Humanities**


**Researcher**

**Sadhana Sarmah**

Assistant Professor, N. L. B. City College, Dibrugarh, Assam

**Research Supervisor**

**Dr. A. T. Shinde**

Professor and Head, Dept. Of Sociology, Indira Gandhi (Sr.) College,
CIDCO, Nanded (M. S.)

**Research Centre**

**School of Social Sciences, S. R. T. M. University, Nanded**
**(M. S.)**


**November, 2021**

# A SOCIOLOGICAL STUDY ON FERTILITY AND MORTALITY AMONG THE TEA GARDEN LABOUR COMMUNITY OF DIBRUGARH DISTRICT, ASSAM

## 1. INTRODUCTION

### 1.1 Demography

Demography is the study of population in numerical and quantitative terms. It primarily consists of two facets – fertility and mortality. This is because a change in the population levels is determined by a shift in the fertility and mortality levels of the community. Fertility is essential for a society since it essentially replenishes the population of the community, and is the most significant criteria affecting the continuity of a given population. Without any fertility, the end of one generation shall lead to an end of the community itself since it will not be replaced by further generations. The famous demographic scholar Thomas Robert Malthus has succinctly hypothesized in his treatise 'An Essay on the Principle of Population' - *"The power of population is indefinitely greater than the power in the earth to produce subsistence for man"* (Malthus*,* 1798).Initially, the countries across the world, including India after its independence in 1947, exhibited a high fertility and mortality rate, however, on account of increased awareness and sustained initiatives by the government, there has been a substantial fall in the fertility rates of the population. Furthermore, there are also divisions in the total fertility rates among South and North India, with the former showing a TFR of 1.3 (Arokrisamy and Goli, 2012). The high fertility rates among rural Indians has also been attributed to a desire among the people for a son by researchers (Gupta, 1987; Das *et.al,* 1997; Tacuber, 1958).

Fertility is however distinguishable from fecundity, which is the physical capability to reproduce during the reproductive cycle beginning from the age at menarche to the age at menopause, with the average number, without any external constraints being 35. However, this is not the natural progression of things, and incidents such as fetal losses, use of contraception, abortion etc. lead to a decrease in the number of children being conceived, thereby making fertility and fecundity two different concepts. Similarly, mortality shows the aggregate or sum total of deaths at any given point of time in any place. This represents that fertility, and conversely mortality as well, are intrinsic to the study of demography. However, these two phenomena do not take place in a vacuum, and are rather influenced by a number

of significant biological factors, with each factor exerting a degree of influence over the two facets of fertility and mortality. Some of the biological factors affecting the fertility and mortality levels are – the maternal age at menarche, maternal age at conception and mother's health and nutritional level. It must also be said that although both fertility and mortality are at their roots biological phenomena, socio-cultural factors also exert significant influence over the same. Some socio-cultural determinants affecting the twin concepts of fertility and mortality are – family type, education levels of the mother, age at marriage, religion and economic condition of the family.

## 1.2 History of Tea Garden Community in Assam

The state of Assam has existed since ancient times in different iterations, and its record has been mentioned within different historical texts, including the two epics – the Ramayana and Mahabharata. Racial ethnicities of different belongings have arrived into the land at different periods of time and settled herein in this land, leading to a composite culture marked by heterogeneity of socio-cultural behavior. However, the land was exploited as a region suitable for growing tea only after the advent of the British East India Company into the region, after the Treaty of Yandabo in 1826 (Baruah, 2019). Prior to that, the cultivation of tea gardens in Assam for commercial purposes in a manner which the British pursued was unheard of.

The settlement of the modern-day tea garden community of Assam began with the British selecting the region for growing tea. Bearing the scientific name *'Commelia sinesis',* the British East India Company received reports highlighting the viability of the northeastern region of India as the perfect place for cultivation of tea owing to its climatic condition in the latter decades of the 18$^{th}$ century itself, however, it was only after the aforementioned Treaty of Yandabo that the British could exploit the area for cultivation of tea, with the first tea garden being setup in Chabua of modern day Dibrugarh district of Assam in the year 1836, with the first shipment of tea cultivated in Assam being shipped to Britain in the year 1838 (Baruah, 1975). Subsequently, a year later, the 'Assam Company'was formed, and the journey of Assam being the prime location for cultivation of tea in British India began.

Despite such momentous beginnings however, the plantation owners ran into two major problems, the first being the necessity of clearing the forest area which dotted the landscape for increasing the area under cultivation, and secondly, as well as more prominently, the lack

of availability of labour, owing to the fact that the local populace was unwilling to work in the tea gardens on account of the low wages and the hazardous working conditions of the gardens as well as the gardens being infamous as a place where diseases festered rampantly. Initially, the British began importing labourers from China as well as from Nepal, however, on account of the same reasons, which prevented the local Assamese populace from engaging in work in the tea gardens, as well as an unfulfilled demand of increased wages, these workers too left dissatisfied, and the British once again encountered the problem of lack of a viable labour force.

This led to the British adopting a system of importation of labourers from different parts of British India, notably, from places like Brahampur and Puruliya of Bengal; Ranch, Chotanagpur and Hazaribagh of Bihar; Bilashpur, Chibacha, Chambalpur, Jagadalpur and Domka of Orissa; Joshpur of Madhya Pradesh; Vigianagram of Madras (Tamil Nadu) and Nasik of Maharashtra (Kurmi,1981). The Assam Tea Company began importing thousands of workers from the peripheral regions of British India, with the Census of 1921 highlighting that there were a third of a million workers engaged in the tea gardens of Assam.

It must be mentioned at this point that the workers who were imported into Assam to work in the tea gardens did not come of their own volition, but were rather coerced through different means to come into the state, and lured through falsified incentives. The first was the *Contract System* wherein workers were collected through contractors sent to far away areas of British India, who lured workers through contracts. Another mechanism adopted was the *Sardari System*, wherein existing workers currently engaged in tea garden labour were sent to recruit a new batch of workers, with these people (named Sardars) being paid a commission for the recruits they brought in. The *Girmit System*, which was a variation of the contract system, with the contracts stipulating that the workers could leave after working for a specific period of time would be allowed to leave for their native places, albeit these workers were almost never allowed to leave upon the fulfillment of the contractual duration, and forced to permanently reside and settle in the tea gardens (Gait, 1984). The plantation owners also utilized a system of forced marriages, named Depot marriage, wherein the labourers from both genders, both male and female, who were of a young age, were married with each other and made husbands and wives, thereby forcing them to live and work together through the imposition of a family system, in a bid that the workers would not go back to their native places if they had a family residing within the gardens. This led to the tea gardens becoming a

place of capitalistic labour exploitation, something which persisted for some time even after the independence of India from the British.

In the present day, the tea garden labourer community has transformed into a consolidated group with different backgrounds but a common socio-cultural heritage. The community has developed certain specific rituals of marriage as well as rituals associated with death which are somewhat different from the norm followed by the larger Assamese community, albeit it is notable that majority of the common elements of the practices which symbolize the Assamese community are found among the tea garden laborers as well. The dressing style of the community is also distinct, highlighting their roots as labourers imported from other regions of British India a century ago, but also signifying their assimilation into the Assamese society after a century of being in this land. The community also has some festivals unique to them, such as *Karam Puja,Mansha Puja, Surjahi Puja and Gram Puja* during the monsoon and summer seasons respectively, although it must be noted that the community also performs *Durga Puja* and *Tulsi Puja,* religious events which are practiced by other members of the Assamese community as well. Due to this fact, irrespective of the distinct differences in their ethnic backgrounds, the community is taken as one singular consolidated group people characterized by their similar type of habitat, style of living, occupation and identification in the green tea-valleys of Assam. A gradual process of socio-cultural integration started among them and keeping aside their social and cultural differences of their places of origin they tried to identify themselves as one single community of tea garden labourers (Sarma; 2003).

Furthermore, it must be mentioned almost every tea garden has transformed into a microcosm of basic services, with almost every garden boasting of a primary school, a primary health center, and a dispensary of some sort. However, it must be noted that these facilities are not completely adequate all the time, and most of the time, unavailability of higher educational institutions beyond a certain degree as well the lack of proper medical facilities which cater to some common ailments such as dengue and malaria which plague the workers commonly is an important issue. It is also notable that due to lack of maternity medical care, the tea gardens of Assam also boast of one of the highest maternal mortality rates in the country, with 363 maternal deaths per 1,00,000 live births (Banerji and Willoughby, 2019).

# 2. RESEARCH TOPIC

Every body of research aims to build on an already existing body of work, by exploiting the gaps enclosed therein. This is because the research is basically undertaken to remodify a discontinuity in the existing body of knowledge. Social research, from its standpoint, aims to establish patterns of relationship between social behavior and the phemonemon being studied (Das Lal, 2018). This particular research is encapsulated within the twin facets of fertility and mortality. These two elements of demography have developed hand in hand. Interestingly, the significance of fertility has been recognized since ancient times, with the famous sculpture of Venus of Willendorf made in 30,000 B.C indicates the importance of fertility in primitive human society as well. Gulati (1988) has postulated that different religious teachings also affect the differential fertility in a distinct manner.

There have been various studies conducted on the nature of fertility and mortality within north-east India among the various ethnic communities which inhabit the region. In this connection, mention may be made of the following publication: Nag(1965), Deka Mahapatra (1970), work among the Khasis, while Boruah(1983) studied the Hajongof Meghalaya; Rengma (2018) on Rengma Nagas; Bhowmik et:al. (1971) reported the fertility rate from among the Zemi women of Nagaland; Sharma and Kar (1985) studied the Wancho and Baruah (1986) studied the Dirang Monpa of Arunachal Pradesh; Das et:al(1980) reported information on fertility and mortality from among the Ahom, Mishing, Deori, Chutia and Morang population of Assam; Sarmah (1998) among Maria Muslims,( Guha and Mukherjee, 1990) among Bodos and Morang (2019) studied the same in Mishing community of Assam. Fertility and Mortality differential among the Khamiyang and Turang population of Assam was recorded by Das (1985). Sengupta-Chakravarty(1995) recorded impact of maternal age and birth order on fertility among the Ahom of Assam. The same has also been studied about the Dimasa (Ray and Ali, 1996), Deori (Borah, 2017), Lalung (Das et.al, 1980), Ahom (Das and Das, 1992) and Sonowal (Kalita, 1992) and Kaibarta (Hazarika,2019) communities. However, studies on fertility and mortality among the communities of north-eastern region are conspicuous of the absence of the proximate bio-social elements influencing these two, and with regard to these limitations, the present study has attempted to study fertility and mortality vis-à-vis the socio-cultural influencers that affect these twin facets among the tea garden community.

In this regard, the current research topic aims to analyze the fertility and mortality rates among the members of the tea garden labourer community.

## 3. IMPORTANCE OF RESEARCH

Every research work attempts to build on the pre-existing body of knowledge in that area by exploiting the existing vacuum with hopes of being able to fill the gap in knowledge. Multiple research endeavours have already been undertaken, as aforementioned, in the field of fertility and mortality, connoting to different ethnic communities of north-east India. Similarly, there have also been studies undertaken on the tea garden labourer community of Assam, albeit such research has been limited in its scope of application to explaining the social, historical and socio-cultural as well as socio-economic factors of the community. It is in this backdrop that this present study has attempted to touch upon, study, and analyze the twin facets of fertility and mortality among the tea garden labourer community, and fill out the gap which exists in this domain. In this regard, this present study has great significance in the domain of social research in the present day context.

## 4. OBJECTIVES OF RESEARCH

The objective of any research endeavor is the soul of the research being undertaken since it provides the skeletal framework of the research, with the objectives essentially connoting to planning the contours of the research before actually carrying it out. The objectives are delineated on the basis of the problem which the researcher has selected for study. The objectives are intrinsic to any study, for without coherent and definite objectives, the researcher would be lost in the vast sea of knowledge pertaining to the field of study.

With regard to the present study, the following objectives have been formulated with regard to the study –

a). The initial objective of the present study has been concerned with the collection of fertility and mortality data which includes number of conception, miscarriage, live births, still births, pre-reproductive mortality etc. from the tea- garden labourer population of Assam and their statistical analysis and interpretation from the point of view of descriptive demography.

b). Another objective of the present study is to find out the fertility and mortality rates against the background of socio-cultural determinants like, family type, age at marriage, maternal education, etc. of tea-garden labourer women.

c). Finally, an attempt has also been made to evaluate comparison between the present tea garden labourer sample with other neighboring population groups of Brahmaputra Valley of Assam with regards to few fertility and mortality components.

## 5. HYPOTHESIS OF RESEARCH

On the basis of the aforementioned objectives, the following hypotheses have been formulated by the researcher in the present study –

a). Type of the family influences the reproductive behaviour. Couples from nuclear families tend to have fewer children.

b). Education and fertility performance are closely related to each other. The higher the educational level of the spouses, the lower fertility rates

c). Age at marriage and fertility performance are closely related. Lower the age at marriage, higher the fertility rate.

d). In a same community if they are practicing different religion fertility rate may vary.

e). Economic status specially the level of affluence has a direct bearing on fertility and mortality rates. Higher economic condition has a lower rate of fertility.

## 6. RESEARCH SAMPLING

The selection of the field is an important and sacrosanct part of any study, and in order to conduct any study on fertility and mortality of a community, women with children are relevant subjects. In this study, women whose husbands are alive and have at least one child have been considered as universe. This is because for the study of fertility and mortality among the members of the community, such limitations on the universe is essential for gathering data with proper scientific temperament. The selection of universe has been based on the following considerations –

Firstly, marriage is a socially recognized sexual relation between men and women. For counting the fertility rate, a sexual relationship is required, so from a widow we may never get the proper information. The reasons for restricting widows as relevant parts of the universe are twofold. For one, such a study connotes asking and enquiring for sensitive information from persons, and in case of widows, they may be reluctant to answer certain queries or impart with some information which may end up affecting the validity of the data collected. Another reason may be that in case of a woman who was widowed at a young age, due to the lack of sexual relationships in her life, her actual fertility rate may not be estimated correctly, which would again end up affecting the validity of the data collected.

Secondly, psycho-physical problems of husband and wives may lead to infertility. The information regarding such a scenario may again be of sensitive nature, which the husband and wife may not be willing to impart with the researcher, or even if they are desirous of sharing this information, the same may not be completely accurate since there is the risk of respondents withholding sensitive information in such scenarios. So while interviewing, the researcher has selected those women who have at least one child.

Keeping these considerations in mind, a pilot study was conducted by the researcher, and the researcher found a total of 2434 permanent employees working in the aforementioned three tea estates, and 1057 eligible respondents within the criteria set for the universe was found. Out of this, 20% respondents, amounting to a total of 211 were selected from the population as the universe of this study for fulfilling the criteria above-mentioned, with this being divided as 88 numbers of respondents from Khowang Tea Estate, 46 numbers of respondents from Khanikar Tea Estate, and 77 numbers of respondents were selected from Sessa Tea Estate. The details of the same has been highlighted in the table below

| SL NO | NAME OF THE TEA GARDEN | NO OF MALE LABOUR | NO OF FEMALE LABOUR | 20% OF FEMALE LABOUR | TOTAL |
|---|---|---|---|---|---|
| 1 | KHOWANG | 574 | 441 | 88 | 1015 |
| 2 | KHANIKAR | 298 | 229 | 46 | 527 |

| | | | | | |
|---|---|---|---|---|---|
| 3 | SESSA | 505 | 387 | 77 | 892 |
| | TOTAL | 1377 | 1057 | 211 | 2434 |

TABLE 6.1 – No. of Respondents in Each Garden

# 7. RESEARCH APPROACH

There may exist multiple approaches for tackling any singular problem. The plan and procedure of the research being undertaken are the two basic elements of the research, and therefore, the scientific procedure which the researcher has sought to follow is essentially the research approach, for that is what provides a framework to the entire research. In this study, both quantitative and qualitative approaches have been used by the researcher for examining the nature of human experience, behavior as well as social conditions associated with the same. Data has been collected through observation and in-depth interviewing, and because of this, the research falls within the realm of qualitative approach. On the other hand, the researcher has also relied on objective and standardized means of enquiry with application of statistical analysis for the attainment of objectivity and generalization, along with systematic application of standardized data analysis methods, and therefore, quantitative approach has also been relied upon by the researcher in this study.

# 8. RESEARCH DESIGN

Every research endeavor mandates a systematic and scientific approach to the problem being tackled, since without the same, bestowing a scientific temper to the study being undertaken becomes impossible. This is because without a rigorous research design, there would be a lack of general standardization. The research design being undertaken must also be coherent with the research problem being undertaken for study, and an incongruous relationship between the two would not yield meaningful results, thereby affecting the validity of the research being undertaken.The design chosen must also have a meaningful relationship with the hypotheses formulated, and should also be in consonance with the objectives of the study which the researcher desires to undertake.

The researcher in the present study has also chosen both descriptive as well as explanatory research designs. The former attempts to describe the characteristics of a definite group or

community, and since the present study is concerned with studying the twin facets of fertility and mortality among the members of the tea garden community, their age and sex composition, religion wise distribution, level of education, occupational status etc., and therefore, the design of the study has been selected as descriptive in nature. In explanatory research design, the researcher goes beyond focusing on a topic and looks for causes and reasons. The present study is focusing on the problems of fertility and mortality among tea garden labourers, and that is why the researcher has also adopted the explanatory research design for this study.

## 9. AREA OF THE STUDY

It is essential for the researcher to select a particular area for conducting the study, since conducting a study without any geographical limitations across the globe would not be entirely possible. The spatial scope of any research must be selected after taking into consideration the research design as well as the objectives of the study since the area being selected for the study must be conducive to tackle the problem selected by the researcher. The selection of an appropriate area which facilitates the research endeavor being undertaken is necessary for the relevance of the data being collected.

In the present study, the researcher has selected the agro-based industrial regions Dibrugarh-West and Moran circles of Dibrugarh District in the state of Assam. Considering that the present study is connected with the fertility and mortality rates of the tea garder labourer community, and the influence of socio-economic factors on the same, the area of study selected is pertinent due to the presence of a large number of tea gardens within the region. In this backdrop, the following criteria have been considered for selecting the relevant area as field of study: -

- Dibrugarh district has the highest concentration of tea garden community people within the state. In this regard, the tea garden community forms an intrinsic part of the socio-cultural ethos of the people in Dibrugarh district, and their significance can be understated in any manner. Therefore, the location of field investigation for the present study is more suitable than any other district of Assam.

- Based upon the distribution of tea gardens, and the resultant tea garden community population, the Khowang Tea Estate covers an area of 996.5-hectare, and has a

permanent labourer count of 1015; Khanikar Tea Estate, having an area of 393.83 hectare, permanent labourer count of 527; and Sessa Tea Estate having 341.5-hectare land with permanent labourer of 892. The same can be regarded as a considerable population for a fruitful study.

- The areas are totally tea garden community dominated, which encompasses people from different classes and religions, and therefore, it can also be regarded to have a considerable demographic structure for conducting the study. The composition of the tea garden community therefore provides a unique backdrop for conducting the present study.

These considerations have been important in the selection of the aforementioned three tea gardens, i.e. the Khowang, Sessa and Khanikar Tea Estates as the field of study.

## 10.TOOLS AND TECHNIQUES OF DATA COLLECTION

Data collection is one of the most important stages of any social research, and the present study is based on both primary as well as secondary data. While the former refers to data which the researcher herself has collected during the course of the study, the latter refers to data which already existed prior to the research being undertaken. Both the primary and secondary sources are pertinent to the present research since secondary information highlights the presence of existing knowledge on the subject, and primary data helps the researcher to understand the current scenario of the problem vis-à-vis the research problem and rely on standardized information to fill the gaps of knowledge.

For primary data for the present study, the researcher collected from 88 respondents from Khowang Tea Estate, 46 respondents from Khanikar Tea Estate and 77 respondents from Sessa Tea Estate of Dibrugarh. The collection was carried out in two phases; the first phase was carried out in between February and March of 2020 in Khowang Tea Estate and the second phase was carried out in July and August of 2020 in Khanikar and Sessa Tea Estate respectively.

There are several tools and techniques of data collection, with each of these bearing distinct nuances vis-à-vis degrees of complexity as well as challenges and shortcomings, with each tool or technique being relevant for the collection of a particular form of data. In the present

study, the researcher has relied upon three methods for the collection of primary and secondary data – interview schedule, interview guide and observation method.

## 11. CLASSIFICATION OF DATA

Classification of data is necessary because the raw data collected from the respondents requires closer analysis and inspection. The raw information must therefore be systematized and synchronized to yield meaningful results. In the present study, the data collected from the respondents has been classified, collated and demarcated through systematization into meaningful statistical information. The following methods of classification have been relied upon by the researcher –

- **Tabulation –** After the classification of data, the information collected has been put into tables. Tabulation helps in the comparison of various facets of collated data, and also facilitates in the systematization of information. The relevance and utilization of data can be done in a more meaningful manner through this. In tabulation, the method of simple frequency point was used, and the frequencies used were then converted into percentages.
- **Analysis –** The tabulated data was analyzed statistically. Without analysis, mere tabulation of information is meaningless since it does not lead to the formation of any significant relationship between the data collected and the research being undertaken. The analysis conducted by the researcher has been on account of the hypotheses formulated, with the end goal behind the analysis of data being the reflection of the collected information for ascertaining the validity of the hypotheses formulated by the researcher.
- **Limitations –** The entire report is dependent on the data collected from the interview schedule. Due to the fact that a large number of respondents are either illiterate or have minimal literacy, and since the interview schedule contains some specific questions about age and numbers, there remains a slight possibility that despite all the necessary precautions which having been undertaken by the researcher, some drawbacks may exist. Furthermore, women have a tendency to show a degree of bias when answering questions pertaining to factors such as age etc., and keeping this in mind, the researcher has relied on certain other cross-questions to reach a definite

conclusion; nonetheless, there may be the possibility that some inaccuracies may remain.

# 12. REPORT

## 12.1 Introduction

The word demography, derived from the Greek words '*demos*' and '*graphein*' was first used by the Frenchman A. Guillard in his book '*Elements de Satistique Humane*' (Guillard, 1855) who defined it as the '*the natural and social history of the human species, or in a narrower sense, the mathematical study of population, their general movements, and their physical, civil, intellectual and moral conditions.* Fertility is the most important component in any study of demography since fertility is the natural replacement and replenishment of population, with this period replenishment being the determining factor behind the continuation of any species (Hazarika,2018). Contrastingly, mortality refersto the state or conditions of being subject to death. It generally means aggregate or sum total of deaths at any given time and place. The present study aims to study the fertility and mortality rates among the tea garden labourer women within Dibrugarh District of the state of Assam. Although the tea garden labourer community has been a part of the greater Assamese social structure for the greater part of 200 years, the fertility and mortality rates of the community through a sociological lens has not yet been subjected to a rigorous study, and therefore, the present study aims to fill that gap within the vessel of knowledge in this domain.

For an aspirational notion of development to be achieved at the community level, there must be a level of fertility which can successfully manage a stable growth of population of the community. The level of fertility must also correspond to the level of mortality for the population, since a high level of fertility coupled with a lower level of mortality and vice versa will be ultimately detrimental to the development of the community itself. It must be noted however that despite being physiological processes at their core, regulated by biological factors, fertility and mortality do not take place in a vacuum, and are influenced by a host of socio-cultural factors as well, with some of these being - the type of family to which the people belong, since the decisions to conceive a child as well as care for it are rampantly different within a nuclear family when compared to a joint family; the level of education of the mother which, again, operates as a determining factor of the reproductive choices which the mother may indulge upon; the age at marriage for the woman since a lower age at

marriage automatically translates to a higher reproductive cycle and vice-versa; religion, being a differentiating factor between communities also affect and impact the reproductive choices of people; and finally, the socio-economic condition of the family also exerts a profound degree of influence on the reproductive choices adopted by the family. It is in this regard that the current paper aims to understand the influence extorted by the aforementioned socio-economic factors over the fertility and mortality rates of women.

## 12.2 Review of Literature

Review of literature becomes an integral part of any research endeavour since it helps the researcher to understand the existing body of knowledge on the subject, and also facilitates the researcher's understanding of the gaps in knowledge present. For the present study, literature has been sorted and divided into groupings, so as to help the researcher gain a better understanding of each individual component. Firstly, relevant literature regarding studies carried out over fertility and mortality rates from a sociological standpoint have been referred to. This chiefly included literature pertaining to studies carried out in the context of north-east India pertaining to the domains of fertility and mortality.

Next, literature pertaining to the tea industry, delineating the nuances of the tea garden labourer community, coupled with their socio-economic practices have been consulted. Notably, since the area of study selected for the present research is confined to Dibrugarh district of the state of Assam, the researcher came across ample research work done in the Assamese language, and accordingly the same has also been consulted and referred to by the researcher to gain a more profound and detailed understanding of the issues being tackled herein. Furthermore, It must also be mentioned that the researcher has been lucky enough to receive literature on the selected topic in the form of unpublished Ph.D thesis, until the year 2019, the year when this research endeavour was undertaken.

## 12.3 Research Methodology

According to C.N. Shankar Rao, "*Research is an attempt to know new things, facts, information etc. in a scientific method. Its main purpose is to diffuse knowledge and establish theories on the basis of the believable facts."* Rao (1990). Research methodology is an integral and necessary part of any research since it bestows a scientific temperament to the research being conducted, for it highlights the pathway which the research desires to

undertake for conducting the research. The methodology selected must be coherent with the research problem which the researcher endeavours to tackle.

The research approach highlights the plan and procedure which the researcher wishes to follow for conducting the researcher, and is essentially the plan of research. In the present study, the researcher has used both qualitative and quantitative approaches. Qualitative approaches help us to examine the nature of human experience, behaviour and social conditions. On the other hand, quantitative approach generally indicates on objective and standardized means of enquiry and relies on the application of statistical analysis for attainment of objectivity and generalization.

The research design is the soul of any research topic, and the ideal research design being undertaken for any research project is the one which effectively tackles the hypothesis formulated by the researcher. The objectives of any study are intrinsic to the study, for without coherent and definite objectives, the researcher would be lost in the vastness of knowledge.

With regard to the present study, the following objectives have been formulated with regard to the study –

a). The initial objective of the present study has been concerned with the collection of fertility and mortality data which includes number of conception, miscarriage, live births, still births, pre-reproductive mortality etc. from the tea- garden labour population of Assam and their statistical analysis and interpretation from the point of view of descriptive demography.
b). Another objective of the present study is to find out the fertility and mortality rates against the background of socio-cultural determinants like, family type, age at marriage, maternal education, etc. of tea-garden labour women.
c). Finally, an attempt has also been made to evaluate comparison between the present tea garden labour sample with other neighboring population groups of Brahmaputra Valley of Assam with regards to few fertility and mortality components.

In this regard, with these objectives seen as the backdrop, the following hypotheses have been formulated –

a). Type of the family influences the reproductive behaviour. Couples from nuclear families tend to have fewer children.
b). Education and fertility performance are closely related to each other. The higher the

educational level of the spouses, the lower fertility rates

c). Age at marriage and fertility performance are closely related. Lower the age at marriage, higher the fertility rate.

d). In a same community if they are practicing different religion fertility rate may vary.

e). Economic status specially the level of affluence has a direct bearing on fertility and mortality rates. Higher economic condition has a lower rate of fertility.

The area of study selected is Dibrugarh district of Assam since it as the highest concentration of tea garden community people within the state, and the community forms an intrinsic part of the social-ethos of the state. The field of study in this regard are. Based upon the distribution of tea gardens, and the resultant tea garden community population, the Khowang Tea Estate covers an area of 996.5-hectare, and has a permanent labourer count of 1015; Khanikar Tea Estate, having an area of 393.83 hectare, permanent labourer count of 527; and Sessa Tea Estate having 341.5-hectare land with permanent labourer of 892. For the selection of universe, the researcher has focused only on married women whose husband is alive with one child. A pilot study conducted and through the same, it was found that there are 1057 women who fulfill the aforementioned objectives, and among them, 211 married women, constituting of 88 numbers of respondents from Khowang Tea Estate, 46 numbers of respondents from Khanikar Tea Estate, and 77 numbers of respondents were selected from Sessa Tea Estate.

Both primary and secondary sources are pertinent to the present research since secondary information highlights the presence of existing knowledge on the subject, and primary data helps the researcher to understand the current scenario of the problem vis-à-vis the research problem and rely on standardized information to fill the gaps of knowledge. Further, both quantitative and qualitative data has been collected by the researcher. Further, for tools of data collection, an interview schedule and interview guide have been used, and supplemented by observation method. The data so collected has been systematized through tabulation so as to bestow a systematic and scientific temperament to the raw data which would make the raw data meaningful. Subsequently, the same has been subjected to analysis so as to investigate the same vis-à-vis the hypotheses formulated.

## 12.4 Data Analysis

The data was collected under two broad headings – the impact of biological determinants and the impact of socio-cultural determinants. For the first heading, three headings were considered – the impact of age at menarche, the maternal age at conception and the impact of mother's health and nutritional level on the fertility and mortality rate.

Within the first heading, on the basis of data collected, the highest degree of menarche has occurred at the age of 9 years (4.88), followed by 11 years (4.19), 13 years (3.76) and 12 years (3.69). The lowest mean conception was found in the extreme upper end i.e. 16 years (2.33), and the live birth rate for the women who had attained menarche at the age of 9 years was seen to be (4.38), followed by 11 years (4.14), 13 years (3.67) and 12 years (3.62). The lowest live birth rate was found from women whose monarchical age is 16, (2.00). With regard to mortality, it was seen that women who have attained menarche at the age of 9 years have the highest rates of infant mortality (11.43%), followed by girls who age at menarche was 10 years (6.17%), 12 years (3.02%), 11 years (2.68%), 14 years (2.63%), and finally 13 years (1.21%). On the other hand, the lowest rates of infant mortality (0) was exhibited by girls who attained menarche at the age of 15 and 16 years of age. Similarly, child death is highest in women of who attained menarche at an age of 10 (7.41%), followed by 11 years (6.04%), 13 years (2.63%) and 12 years (2.42%). Child death was zero in women whose age at menarche was 9 years, 15 years and 16 years. Further, with regard to juvenile death, it was found that mothers whose age at menarche 9 years showed the highest rate i.e. 5.71% and followed by 12 years (5 42%), 11 years (4.03%), 10 years (3.70%), 13 years (3.64%) and 14 years (2.63%). The monarchical age of 15 and 16 years showed the zero incidents of juvenile death.

Within the second heading, the frequency of tea garden labourers is more (45.50%) in maternal age group which belongs to 15-19 years, and their conception rate is also higher (55.10%). It is followed by the maternal age group of 22-24 years (31.54%), 25-29 years (10.34%), 30-34 years (2.09%), 35-39 years (0.79%) and 40-45 (0.13%). Regarding mortality, the rate of miscarriage is highest among the mothers whose maternal age group is 35-39 years i.e. 16.67%. It is followed by the maternal group of mothers 32-34 years (12.50%), 25-29 years (3.80%), 20-24 years (0.83%) and 15-19 years (0.95%). In case of still births, the study found that the highest still birth rate is present in the maternal age group of 30-34 years, i.e. 6.25%, which is followed by the maternal age group of 25-29 years (1.27%), 20-24 years (1.24%) and 15-19 years (1.19%). There are zero incidents of still birth among the maternal age group of 35-39 and 40-45 of years.

Finally, regarding the third heading, it has been seen that a majority of the tea garden labourer women fall in the underweight category. On forms of malnutrition and reproductive performance, it has been seen that women who belong to the underweight category have a comparatively higher mean conception rate (4.19) when compared to the mean live birth rate (4.09). It is then followed by women who belong to normal weight (conception 3.09; live birth 2.97), and sturdy (conception 3.03; live birth 3.0). The respondents belonging to the sturdy category have also been seen to exhibit the highest frequency of miscarriage (3.30%), which is then followed by underweight (1.39%) and normal (1.24%) categories. With regard to still births, a slightly higher incidence of still birth (1.62%) is recorded among women belonging to the underweight category, and is closely followed by sturdy (1.10%) and normal (0.83%) categories.

Despite being purely biological processes, fertility and mortality are intrinsically influenced by socio-cultural factors as well. In other words, notwithstanding that human reproduction is a biological phenomenon at its core, it is greatly influenced by socio-cultural agents as well (Lorimer et.al, 1954).Concerning the impact of socio-cultural determinants, five broad headings were selected on the basis of the hypotheses formulated, which have been mentioned above. These are –family type, education level, age at marriage, religion and economic condition.

Concerning the impact of fertility and family type, 72.03% of the respondents lived in nuclear families, while 27.96% respondents lived in joint families. The mean conception rate for nuclear families was (3.31), which is far lower than the mean conception rate for joint families, which is (4.42). Furthermore, with regards to the mean live birth, the nuclear families had a mean live birth of (3.20), which is again lower than the mean live birth of joint families, which is (4.32). Regarding mortality, it has been found that with regard to nuclear families, the total reproductive wastage as well as juvenile mortality rate is higher than joint families. Therefore, on the basis of this data, it can be surmised that the type of family influences the reproductive behavior, and the couples from nuclear families tend to have a lower fertility rate.

Concerning the impact of education of the woman on the fertility and mortality rates, the educational level of the universe was divided into five brackets - illiterate, women with an education up until Class V, women with an education until class VII, women with an education until class IX, and finally, women with an education level of class X or above.

Among the respondent population, (41.71%) of the respondents were found to be illiterate whereas, the total percentage of respondents who were literate stands at (58.28%). Among the literate women, with regards to the four brackets of literacy, (11.66%) women had an education between Class I – V, (29.45%) women had an education between Class V-VII, (10.43%) women had an education between Class VIII-IX and (6.75%) of the women had an education of Class X or above. Among the respondents, the mean conception rate among the illiterate women was (4.82), the mean conception among the women who had attained an education between class I-V was found to be (3.88), mean conception among the women who had attained an education between class V-VII was (2.58), the mean conception among the women who had attained an education between class VIII-IX was (2.65) and finally, the mean conception among the women who had attained an education of Class X or above was (1.91). Further, if the mean conception is compared between the illiterate and literate mothers, it is found that illiterate (4.82) and literate (2.74) shows that mean conception highly declines with the level of literacy and education. Regarding mortality, the reproductive wastage among the illiterate mothers is (3.53%), among mothers with education from Class I- V (3.23%), among mothers with education from Class V- VII (3.20%), mothers with education from Class VIII-X (2.90%) and, interestingly, among mothers with education from Class X and above, not a single case of reproductive wastage (0.00%) is reported. Further, while studying mortality, the total reproductive wastage among illiterate mothers is as high as (3.53), but on the other hand, literate mothers show a total reproductive wastage of only (3.40).

Therefore, on the basis of this data, it can be surmised that education and fertility performance are closely interrelated, and a higher level of education of the mother leads to a lower level of fertility.

Concerning the impact of age at marriage, it was found that the mean age at marriage was 19.14 years. The data collected by the researcher highlighted that the highest percentage of conception (10.5%) as well as live birth (8.50%) is for girls who got married at the age of 13-14 years. This percentage shows a downward trend with an increase in the age of marriage, with the percentages of conception and live birth for the different ages being – 15-16 years (9.36 and 8.64 respectively), 17-18 years (4.89 and 4.80 respectively), 19-20 (3.03 and 3.00 respectively), 21-22 years (2.53 and 2.53 respectively), 23-24 years (1.71 and 1.64 respectively), 25-26 years (1.40 and 1.40 respectively), 27-28 years (1.50 and 1.17 respectively), and 29-30 years (1.67 and 1.67 respectively). Furthermore, it was seen by the

researcher that with an increase in the age of marriage by four years (13-14 to 17-18), the percentages of conception and live birth significantly decreased by almost half (10.5 and 8.50 against 4.93 and 4.82).

Therefore, from the data presented herein, it can be surmised that there exists a clear relationship between the age of marriage and the fertility performance of women. An inverse correlation can be inferred between fertility performance and the age of marriage, with subsequent age groups highlighting a lower fertility rate.

Concerning the impact of religion, among the respondent women, 78.2% are Hindus, while 21.8% are Christians. The mean rate of conception among Hindus and Christians is (3.61) and (3.65) respectively. Further, the mean rate of live birth among Hindus and Christians is (3.52) and (3.52) respectively.

Therefore, it is seen that there is no difference between the mean rates of conception and live birth between the two communities

Finally, concerning the relationship between economic status and the fertility and mortality rates, with the respondents divided into three headings – high, moderate and low, on the basis of economic development, with the percentage of women in each of these three categories being 18.96%, 35.07% and 45.97% respectively, the women showed a mean conception rate and live birth rate of (2.8 and 2.7), (3.59 and 3.49), and (3.62 and 3.52) respectively. Regarding mortality, among the high, moderate and low categories, the degree of miscarriage among the three groups is (1.79%), (1.50%), and (1.55%) respectively. Further, on the degree of infant mortality, the same is – (4.63%), (3.88%), and ((3.72%) respectively. Regarding child mortality, the rates are – (3.70%), (4.65%), and (3.72%) respectively. Finally, the degree of juvenile death is (5.56%), (3.49%), and (3.46%) respectively.

Therefore, from this data, it can be surmised that there exists a clear relationship between the fertility rates and the level of economic development, and higher the economic development, lower the fertility rates of the community.

## 12.5 Finding and Conclusion

Among the five hypotheses, four of them have been proven to be correct on the basis of the data, collected and analyzed by the researcher on the basis of certain scientific tools, while one of them have been disproven on the basis of the data collected. Among the four proven

hypotheses, the data highlighted the crux of each hypothesis and delineated the researcher's assumptions in the hypothesis through concrete factual information.

With regard to the one hypothesis which was disproven by the data, this hypothesis being the assumption by the researcher that there exists a relationship between religion and fertility rates, with different religions exhibiting different fertility rates, the data did not signify the presence of any such marked difference. Nevertheless, studies undertaken by a number of scholars have delineated that religion does influence the fertility rates of people, although the current study failed to establish any such relationship.

## 12.5.1 Findings –

One of the foremost markers of a developed society is a low fertility rate and low mortality rate among the population. From the data collected, it has been seen that education has an inverse relationship with the fertility rates of women, and educated women tended to have a lower fertility rate when compared to women who were uneducated. This shows that an increase in the level of education is instrumental as far as lowering the fertility rates of women is concerned. According to the verdict of the Supreme Court of India in the case of *Mohini Jain v. State of Karnataka (1998)*, right to education has been considered an integral part of Article 21 of the Indian Constitution, and through the 86$^{th}$ Constitutional Amendment Act, right to free and compulsory education for children up to class has been delineated within the constitutional framework through the insertion of Article 21-A. This was an attempt to ensure that financial constrains do not hamper the educational aspirations of children. Nevertheless, in case of the girls from the tea garden community, the sample population shows that only 58.28% women were literate, and a shocking 41.71% of the women were illiterate.

Furthermore, from the data collected, it has been seen that girls from the tea garden labourer community, from the sample population, had a mean age at marriage of 19.4. This is well above the threshold set forth by the Prohibition of Child Marriage Act, 2006, according to which the minimum age at marriage for girls is 18 years. Nonetheless, it has also been seen that around 33% of the girls from the respondent population got married at an age below 18 years, which is the mandatory minimum age, and this is also a big concern. On the basis of our study, it is found that mothers who get married between the age group of 13-14 years had

a mean conception rate which was more than two times higher than the mothers who got married between 17-18 years.

Finally, in the present study, it has been observed in the present study by the researcher that there was a drastic increase in the mean rate of conception when the level of income of the family showed a downward trend, thereby highlighting that there exists an inverse relationship between the two. This shows that with an increase in the economic conditions, there will be a decrease in the fertility rates, and vice versa.

The following issues can therefore be seen –

i). The atmosphere of the school may not be adequate or satisfactory and the infrastructure of the schools provided may not be sufficient to meet the basic demands.

ii). The attitude of the teachers as against the students from the tea garden labourer community may be indifferent, and they may not provide proper attention to these children.

iii). The attitude of the parents may also not be conducive of an atmosphere which promotes education among the girl children. The parents usually have a habit of alcohol consumption resulting in alcoholism, and this leads to an atmosphere within the homes of the children that is not at all adequate for promoting studies.

iv) The language spoken in the schools is different from the language spoken in the local schools, which makes imparting education as well as receiving information from the teachers an arduous task for the children, and this prompts then to cease their educational pursuits.

v). Due to the fact that girls at a lower age of marriage may not have developed completely from a physical, mental and psychological perspective, they do not have the necessary experience or know how to take care of either themselves or the new born child, and this poses a great risk for the young mother as well as the new born baby.

vi). Both the males as well as the females of the tea garden labourer community are fond of alcohol and this is one avenue which takes up a lot of money from their income.

vii). The minimum wage to be paid to a permanent labourer working in the tea gardens was raised from Rs. 167 per day to Rs. 217 per day recently. Nevertheless, this too is insufficient to meet the expenses in present times.

viii). Mortality and reproductive wastages are a great concern, and they must also be tackled through policy schemes as well as awareness about the health of both the mother and the child.

ix). A lower age of marriage leads to a larger reproductive cycle, which correlates positively with a greater fertility rate.

x). The concept of savings is extremely low among the members of the tea garden community, and they tend to be a community of people who have a tendency to spend a lot of money on festivities, colorful clothes and other materialistic amenities. Because of this, they do not have the notion of economizing their income.

## 12.5.2 Suggestions

In light of aforesaid problems, the following suggestions are being made by the researcher -

i). The crèche facility has been guaranteed under the Plantation Labour, 1951, however, it has been seen that the same is not mandatorily available in all the tea gardens, and this prompts the female children to take care of their younger siblings which reduces the time they can spend on studies, as well as contributes to dropout rates which prevents them from attending classes as well. Therefore, it is suggested that the mandatory provision of having crèches should be strictly implemented in all the tea gardens so as to ensure that no girl child has to sacrifice her studies for taking care of her siblings.

ii). The linguistic barrier which is prevalent in the local schools is different and this leads to stagnation in the education of children. As a remedy to this problem, steps should be taken to ensure that the teacher teaches them in their local language, at least during the primary levels of schooling, so as to facilitate their understanding of the knowledge being imparted, and thus, increase interest in studying.

iii) The Right to Education Act, 2009, which mandates free and compulsory education for children till the age of 14 years, has not been implemented properly, and it must be ensured that this policy is implemented to its fullest extent, with a view that its benefits are enjoyed by the children in the tea gardens as well.

iv). Alcoholism among the parents is a serious issue, and to curtail this, awareness programs should be started in the tea gardens by government as well as non-government voluntary organizations.

v). Infrastructure issues pose a great threat to the pursuit of education by the children of the tea garden communities, and this is also exacerbated by the fact that high schools are unavailable in any of the tea gardens, thereby forcing the children to seek education from other institutions outside the gardens. These children also face connectivity and transportation issues since sometimes the gardens are in remote areas. Moreover, it has been seen that although the interested boys can rely on cycles and other traditional means of transportation to avail educational facilities outside the gardens, the girls do not have such facilities or liberties. As a remedy to this problem, the government of Assam has drafted a policy to construct high schools in 119 tea gardens in the state of Assam, and this is a welcome step. However, it must be ensured that this does not remain a policy merely on paper, and is translated into practical application.

vi). The Government of Assam has also started a scheme named Pragyan Bharati Scooty Scheme under which they plan on giving scooties (gearless bikes) to meritorious girl students who secure first division marks in the higher secondary examinations conducted by the state education board. This is a means of empowering the students and is greatly appreciated in the present context.

vii). The government of Assam has brought forward a scheme titled Arundhati Gold Scheme, wherein it seeks to provide one tola (10 grams) of gold to each woman for registering her marriage in the official records. However, a marriage may only be registered if the age of marriage for a girl is 18 years of age, for it is the legal threshold. Therefore, it can be surmised that to avail the benefits of this scheme, the girl must be of a legally marriageable age so as to register the marriage. This scheme is thus a means undertaken by the government to ensure that the minimum age of marriage is followed. It is also interesting to note that among the 211 respondents, not even one marriage was registered since they have an apprehension about any dealings on legal issues. Despite being a novel scheme, there is lack of awareness about the aforementioned Arundhati Scheme among the tea garden labourer communities, and it is necessary to increase awareness about it in the gardens, for that will fulfill the twin goals of ensuring that

children are married after the minimum legal age of marriage, and also that the marriages are registered.

viii). Incentives concerning savings must be provided to the members of the tea garden communities with avenues such as the proper implementation of schemes like Jan Dhan Yojana. In such schemes, labourer women should be targeted since they have a greater tendency to undertake savings but are unable to do so due to a lack of infrastructure, facilities and awareness.

ix). In order to encourage the members of the tea garden labourer community, health camps can be organized through audio-visual means by the governmental or non-governmental voluntary organizations to raise awareness about the ill effects of excessive alcohol consumption from the perspective of health as well as finances. It has already been seen by the present study that with an increase in the degree of economic status, the fertility level decreases significantly.

x). The minimum daily wage for the permanent labourers is inadequate and must be increased to an amount which helps the community sustain themselves in a better manner, and also uplifts them economically.

xi). To attain the status of a developed society, reduction of mortality among infants, children and juveniles as well as reproductive wastages is also necessary. This can be achieved through the consumption of health supplements such as iron, folic acid etc. Moreover, implementation of schemes which focus on the natal health of both mother and child, such as Mamoni scheme of Assam, must be highlighted among the members of the tea garden community. This is because there is a lack of awareness about the same. Thus, steps must be taken so as to ensure its proper implementation, and to see that its benefits are also enjoyed by the mothers from the tea garden community.

xii). Mission Indradhanush, which is a health scheme introduced by the government of India, to provide immunization to children against eight vaccine preventable diseases, namely - Diphtheria, Whooping Cough, Tetanus, Polio, Measles, severe form of Childhood Tuberculosis and Hepatitis B and meningitis & pneumonia caused by Haemophilus influenza type B; and against Rotavirus Diarrhea and Japanese Encephalitis must also be implemented within the tea garden communities to reduce infant and child mortality.

# BIBLIOGRAPHY


- Arokiasamy, P & Goli, S. (2012): ***Fertility Convergence in the Indian States: An Assessment of Changes in Averages and Inequalities in Fertility***, Genius LXVIII No. 1, pp. 65-88.
- Banerji, S. and R, Willoughby. (2019) ***Addressing the Human Cost of Assam Tea - An Agenda for change to respect, protect and fulfill human rights on Assam tea plantations,*** Oxfam.
- Baruah Dinanath (1977): ***Chahor Kotha*** (Assamese) Assam Sahitya Sabha, Jorhat.
- Baruah, S.L. (2019) A Comprehensive History of Assam, Munshiram Manoharlal Publishers.
- Borah Juri (2017): A Study on Reproductive Health of the Dibongiya Deori Women of Assam, an unpublished dissertation of Dibrugarh University.
- Das Lal D. K. – 2008, ***Doing Social Research*:*A Source Book for Preparing Dissertation.*** Kalpaz Publications, Delhi.
- Das, et.al (1997)**:** ***Fertility Declined and Increase Manifestation of Sex Bias in India,*** Population Studies, Vol. 51(3), pp. 307-315.
- Das. B.M., P.B. Das., R. Das. and R.K. Kar. (1980): ***Lalung, Their physical features and biosocial profile***. UGC Research Project, Guwahati University.
- Deka Mahapatra, U. (1970): ***Study of fertility in a tribe of North East India.*** Journal of Social Research, 13:74-82.
- Gait, Sir Edward (1984): ***A History of Assam***, LBS Publication Guwahati.

- Guha, A. and D. P. Mukarjee. (1990): ***Influence of cultural traditions and social movements on the genetic structure of the Bodo Kachari population***. Journal of Indian Anthropological Society. 25:73-81

- Gulati, S. C. (1988): ***Fertility in India, an Econometric Analysis of a Metropolis***. Sage Publications, New Delhi. p.p. 52-53.

- Gupta, M.R. (1987): ***Rural-Urban Migration and Urban Unemployment: A Note,*** Scottish Journal of Political Economy. Vol. 34, No. 3 August 1987.

- Hazarika Jyoti (2019): Reproductive Health and Nutritional Status of Kaibarta Women of Assam'. An unpublished dissertation of Dibrugarh University.

- Hazarika, C. R. (2018) Opium Addiction Fertility and Infant Mortality – A Study Among the Singphos and Wanchos of Arunachal Pradesh, An unpublished PhD dissertation for Guwahati University.

- Kalita, M. (1992): A Study of Fertility and Mortality among the Sonowal Kachari of Mancotta Mouja, Dibrugarh District, Assam. Unpublished M.Sc Dissertation , Dibrugarh University.

- Kurmi S.K. (1981): ***Chah Bagichar Kotha*** (Assamese). Assam Sahitya Sabha, Jorhat.
- Malthus, T.R., ***An Essay on the Principles of Population***, J Johnson St Paul's Church Publishers (1798).
- Mohini Jain v. State of Karnataka. 1992 AIR 1858.
- Morang Pallabi (2019): A study on Reproductive Health and Nutritional Status of the Missing Women of Assam'. An unpublished dissertation of Dibrugarh University.

- Nag, M. (1962): ***Factors Affecting Human Fertility in Non-Industrial Societies: A Cross Cultural Study.*** Department of Anthropology, Yale University, New Haven
- Rao Sankar C.N. – 1990, ***Sociology: Principles of Sociologywith an Introduction to Social Thought.*** S. Chand & Company Ltd, New Delhi; Page No 54.
- Ray, B and A. N. M. Irshad Ali (1996): ***A short note on the intensive agriculture and increase in fertility with special reference to some North- East Indian Population***. Bulletin of the Department of Anthropology, Dibrugarh University.
- Rengma S.N. (2018): A study on Socio economic and Demographic Variables Affecting Maternal and Child Health and Nutritional Status Among the Rengma Nagas of Assam. An unpublished dissertation of Dibrugarh University.
- Saikia D. (1978): Chah ***Bagichar Shramik Aru AAin*** (Ass). Akha Prakashan. Dibrugarh.
- Sarma, S. C. (2003): *Sub- Culture of the Baganias,* Unpublished Ph.D. Dissertation of Deptt. Of Sociology, Dibrugarh University.
- Sarmah M. P. (1998): A Study on some Biological and Socio-cultural Determinants of Fertility and Mortality among the Maria Muslims of Dibrugarh Assam, an unpublished M.Sc. dissertation of Dibrugarh University.
- Sengupta, S and M. P. Sarmah. (2008): ***Effects of some Bio-Cultural factors on Fertility and Mortality among the Maria Muslims of Assam: A Preliminary Appraisal.*** Bulletin of the Department of Anthropology, Dibrugarh University
- Sengupta, S. and K. Chakrabarty (1995): Family Type, Fertility and Mortality: A Study among the Ahoms of Assam. Journal of Human Ecology 6(3).

- Tacuber, B (1958): ***The Changing Population of United States,*** United Book House, America.



**Researcher**
**Sadhana Sarmah**

**Research Supervisor**
**Dr. A. T. Shinde**
Professor and Head,
Dept. Of Sociology,
Indira Gandhi (Sr.) College,
CIDCO, Nanded (M. S.)